

Docket No. AUS920030488US1

**CLAIMS:**

What is claimed is:

1. A method for executing instructions in a data processing system, comprising:

associating one or more instructions of a computer program with one or more performance indicators;

storing the one or more performance indicators in one or more performance indicator fields of a page table;

initiating one or more counter fields in the page table for the one or more instructions in association with corresponding performance indicators of the one or more performance indicators; and

incrementing values in the one or more counter fields during execution of an instruction of the computer program based on whether the instruction has an associated performance indicator in a performance indicator field of the page table.

2. The method of claim 1, wherein incrementing values in the one or more counter fields during execution of an instruction includes:

determining if an event associated with a performance indicator stored in the one or more performance indicator fields has occurred; and

incrementing a value in a corresponding counter field of the one or more counter fields if the event has occurred.

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3. The method of claim 1, wherein the event is a cache miss.

4. The method of claim 1, further comprising:  
storing one or more threshold values in one or more threshold fields of the page table in association with the one or more performance indicator fields and the one or more counter fields.

5. The method of claim 4, further comprising:  
upon the occurrence of an event, comparing one or more values in the one or more counter fields to a threshold value in the one or more threshold fields; and  
generating an interrupt if a predetermined relationship between the one or more values in the one or more counter fields and the threshold value is present.

6. The method of claim 1, further comprising:  
receiving an access request for portion of code or portion of data, wherein the access request includes an identifier of a virtual address of the portion of code or portion of data;

converting the virtual address to a real address of a storage location of the portion of code or portion of data in a storage device;

accessing the portion of code or portion of data via using the real address; and

determining whether an event has occurred during the accessing of the portion of code or portion of data, wherein incrementing the values in the one or more

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counter fields is performed in response to a determination that the event has occurred during the access of the portion of code or portion of data.

7. The method of claim 1, wherein associating one or more instructions of a computer program with one or more performance indicators includes associating the one or more performance indicators with a virtual and a real addresses of the one or more instructions in the page table.

8. A computer program product in a computer readable medium for executing instructions in a data processing system, comprising:

first instructions for associating one or more instructions of a computer program with one or more performance indicators;

second instructions for storing the one or more performance indicators in one or more performance indicator fields of a page table;

third instructions for initiating one or more counter fields in the page table for the one or more instructions in association with corresponding performance indicators of the one or more performance indicators; and

fourth instructions for incrementing values in the one or more counter fields during execution of an instruction of the computer program based on whether the instruction has an associated performance indicator in a performance indicator field of the page table.

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9. The computer program product of claim 8, wherein the fourth instructions for incrementing values in the one or more counter fields during execution of an instruction include:

instructions for determining if an event associated with a performance indicator stored in the one or more performance indicator fields has occurred; and

instructions for incrementing a value in a corresponding counter field of the one or more counter fields if the event has occurred.

10. The computer program product of claim 8, wherein the event is a cache miss.

11. The computer program product of claim 8, further comprising:

fifth instructions for storing one or more threshold values in one or more threshold fields of the page table in association with the one or more performance indicator fields and the one or more counter fields.

12. The computer program product of claim 11, further comprising:

sixth instructions for comparing, upon the occurrence of an event, one or more values in the one or more counter fields to a threshold value in the one or more threshold fields; and

seventh instructions for generating an interrupt if a predetermined relationship between the one or more

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values in the one or more counter fields and the threshold value is present.

13. The computer program product of claim 8, further comprising:

fifth instructions for receiving an access request for portion of code or portion of data, wherein the access request includes an identifier of a virtual address of the portion of code or portion of data;

sixth instructions for converting the virtual address to a real address of a storage location of the portion of code or portion of data in a storage device;

seventh instructions for accessing the portion of code or portion of data via using the real address; and

eighth instructions for determining whether an event has occurred during the accessing of the portion of code or portion of data, wherein incrementing the values in the one or more counter fields is performed in response to a determination that the event has occurred during the access of the portion of code or portion of data.

14. The computer program product of claim 8, wherein the first instructions for associating one or more instructions of a computer program with one or more performance indicators include instructions for associating the one or more performance indicators with a virtual and a real addresses of the one or more instructions in the page table.

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15. An apparatus for executing instructions in a data processing system, comprising:

means for associating one or more instructions of a computer program with one or more performance indicators;

means for storing the one or more performance indicators in one or more performance indicator fields of a page table;

means for initiating one or more counter fields in the page table for the one or more instructions in association with corresponding performance indicators of the one or more performance indicators; and

means for incrementing values in the one or more counter fields during execution of an instruction of the computer program based on whether the instruction has an associated performance indicator in a performance indicator field of the page table.

16. The apparatus of claim 15, wherein the means for incrementing values in the one or more counter fields during execution of an instruction includes:

means for determining if an event associated with a performance indicator stored in the one or more performance indicator fields has occurred; and

means for incrementing a value in a corresponding counter field of the one or more counter fields if the event has occurred.

17. The apparatus of claim 15, wherein the event is a cache miss.

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18. The apparatus of claim 15, further comprising:

means for storing one or more threshold values in one or more threshold fields of the page table in association with the one or more performance indicator fields and the one or more counter fields.

19. The apparatus of claim 18, further comprising:

means for comparing, upon the occurrence of an event, one or more values in the one or more counter fields to a threshold value in the one or more threshold fields; and

means for generating an interrupt if a predetermined relationship between the one or more values in the one or more counter fields and the threshold value is present.

20. The apparatus of claim 15, further comprising:

means for receiving an access request for portion of code or portion of data, wherein the access request includes an identifier of a virtual address of the portion of code or portion of data;

means for converting the virtual address to a real address of a storage location of the portion of code or portion of data in a storage device;

means for accessing the portion of code or portion of data via using the real address; and

means for determining whether an event has occurred during the accessing of the portion of code or portion of data, wherein incrementing the values in the one or more counter fields is performed in response to a

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determination that the event has occurred during the access of the portion of code or portion of data.